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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,863	12/12/2001	Willibrord A. Groten	CDT 1756-2	2592

1338 7590 02/02/2006

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ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 02/02/2006

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/015,863
Filing Date: December 12, 2001
Appellant(s): GROTEN, WILLIBRORD A.

Kenneth H. Johnson
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed November 14, 2005 appealing from the Office action mailed April 8, 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,290,427	FLETCHER ET AL.	3-1994

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fletcher et al. (US 5,290,427).

The Fletcher reference discloses a process for removing sulfur from a naphtha feedstock. The process comprises fractionating the naphtha to form two or more fractions of increasing boiling range. These two or more fractions are then hydrotreated to remove sulfur compounds. The hydrotreatment steps comprise passing the heavier fraction to a reactor where the fraction contacts a catalyst at hydrodesulfurization conditions to convert sulfur compounds present in the fraction to hydrogen sulfide. The lighter fraction is then passed to the reactor where it is mixed with the hydrodesulfurized heavier fraction. This mixture is then passed to a second catalyst bed where it is subjected to hydrodesulfurization conditions. The catalyst used in the hydrotreatment steps comprises Group VI and VIII metals on a support such as alumina. Metal combinations such as Ni-Mo and Co-Mo are explicitly disclosed. The reference also discloses that a light fraction that boils below about 150°F (65°C) contains mostly mercaptans as the sulfur compounds present and that these mercaptans may be removed by an extractive type process. Therefore, the Fletcher reference is interpreted to disclose the separation of the naphtha into three fractions with the lightest fraction that contains mostly mercaptans being subjected to a caustic wash, the heaviest fraction being subjected to hydrodesulfurization and then mixed with what is equivalent to the intermediate fraction with this mixture being subjected to further

hydrodesulfurization. See column 3, lines 12-55; column 4, lines 5-60; column 6, lines 1-11;column 8, lines 64-68; column 9, lines 1-20 and 52-59; column 10, lines 65-68; column 11, lines 1-22; and column 12, lines 16-28 and 42-45.

The Fletcher reference does not disclose the use of two separate hydrodesulfurization reactors and does not disclose the boiling ranges for the fractions.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Fletcher by utilizing two separate reactors for the hydrodesulfurization steps because such an arrangement is equivalent to two separate catalyst beds in one reactor vessel.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Fletcher by utilizing the claimed fractions with the claimed boiling ranges because any boiling range fractions will be effectively treated as long as the heavier fraction is introduced at the inlet of the reactor.

(10) Response to Argument

The argument that the claimed process does the exact opposite of what the Fletcher process does in that the claimed process preserves olefins whereas the Fletcher process destroys olefins in not persuasive. Fletcher clearly discloses in column 3, lines 28-31 that the process enables desulfurization to be carried out in a way that reduces the saturation of olefins. From this teaching, it is clear that the process of Fletcher does not desire the destruction (i.e., saturation) of olefins but, in fact, desires the preservation of these olefins.

The argument that the operating conditions in the reactor where the combined stream is treated in the claimed process are less severe than the operating conditions of Fletcher is not persuasive because this argument is based on limitations that are not contained in the claims. The claims do not contain any specific process conditions.

The argument that the process of Fletcher treats the entire feed with caustic wash and not the light fraction as claimed is not persuasive because Fletcher discloses in column 4, lines 44-51 that a light fraction boiling below 150°F is treated to remove mercaptans by an extractive type process such as Merox. This type of process is a caustic wash process. Additionally, this fraction treated by the caustic wash in the process of Fletcher is essentially the same as the light cracked naphtha in the present claims.

The argument that the present invention is distinguished from that of Fletcher in that it is the separation of the streams that is the salient element of the present invention followed by selective treatment is not persuasive. The Fletcher reference discloses treating at least three fractions with the lightest fraction being treated by caustic washing as claimed and with the two heavier fractions being treated by hydrotreatment. Treating two fractions by hydrotreatment in the manner disclosed by Fletcher necessarily results in a heavy fraction and an intermediate fraction being treated in a similar manner as claimed.

The argument that the two reaction zones (i.e., catalyst beds) of Fletcher are not equivalent to two reactors as claimed is not persuasive. In either case, the heavier fraction is contacted with a first catalyst in a first reaction and is then combined with the intermediate fraction with this combined stream then contacting a second catalyst in a second reaction zone.

The fact that the catalyst may or may not be in individual vessels is immaterial especially since no conditions are specified for the claimed reactors.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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